# Number of Instars of the Larva of *Herse convolvuli* L.

By D. S. Bunn

On 16th September 1967 I was presented with a rather battered female Convolvulus Hawk Moth which had been caught in Preston, Lancs., about ten days previously. It was encouraged to feed on some sugar and water, and during the night laid about seven or eight pale blue eggs. Some of these were affixed to the Convolvulus leaves provided, the rest were loose in the bottom of the box. It was fed again on the following evening and laid a further half-dozen eggs during the night. The next morning it was dead, I think from over-feeding as its abdomen was prodigously distended and oozing liquid. The eggs soon turned green and on 28th and 29th September six of them hatched. Two of the larvae were given away and the remaining four at the time of writing have burrowed into the soil to pupate.

Since the larvae went down I have seen the article in the *Entomologist's Record* (Vol. **71**, No. 10) by C. M. R. Pitman entitled "Further Observations on Rearing *Herse Convulvuli* L." and as my notes will demonstrate, I have strong reason to suspect that the author was mistaken in his assumption that the larvae only moulted three times. In fact, Mr. Pitman says in the final paragraph that his two larvae had only three instars, but as he has described three moults they must have had at least four instars, and this remark must have been simply due to a slip of the pen. However, I submit that Mr. Pitman missed the first moult and that his larvae actually had the expected five instars. I also suspect that the captions beneath the photograph were mixed up, the description of (a) agreeing with the right-hand caterpillar which is labelled (b), and vice versa. So far as can be seen my own specimens resembled more the left-hand caterpillar which is the dark type.

Let us compare our independent descriptions of the most vigorous larvae in the following way:—

| | PITMAN | BUNN | |
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| '1st' and ?2nd Instar (12 days) | For the first few days of their existence growth was very slow. When hatched they were approx. ,3 mm. long, dull whitish green in colour, with rough skin and a slightly curved pale greenish horn tipped with black. By the end of the first week (a) had attained a length of about 6 mm. with (b) slightly smaller, and both ate very little at this stage. | Dull yellow when first hatched with a long black tail, sometimes straight, or curved to a varying degree. After eating a little the larvae become green, especially in the thoracic region. Growth is very noticeable a few *hours* after hatching. The larvae eat holes in the leaves rather than starting from the edge. They tend to rest on the last two pairs of claspers only and take up a station on one of the basal leaf lobes. The green soon covers the whole caterpillar apart from the head. | 1st Instar (4 days) |
| | | A dark green longitudinal band develops along the back edged by two yellowish | |

| | PITMAN | BURR | |
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| | | bands (one on each side), the remainder being a lighter green. The tail remains jet black. As the instar proceeds the yellowish bands become broad white bands. There are white rings between the segments and somewhat less noticeable white rings all along the body close together. These appear to be numerous folds of skin. The head remains pale green. | 2nd Instar (5 days) |
| 2nd but ?3rd Instar (4 days) | (a) was light green in colour with a black horn and *small black spiracles with a row of black dots above them and seven whitish oblique lines* along each side, with the skin a little rougher than before. (b) looked very much the same but the spiracles were deep green with no spots above them, the oblique stripes almost invisible and the horns brownish. For the next few days their appetites increased, eating voraciously; they grew to 16 mm. By now they were feeding both by day and night, but still continued to rest along the midrib of the leaf. | At first not unlike previous instar but soon begins to show typical hawk moth characteristics. The head is green and rough with a yellow inverted 'V' on it. The tail is mostly green but the basal half on top tends to be dark, and also the extreme tip, though there is much individual variation. The body becomes progressively a whitish green. The thoracic segments have two dorso-lateral whitish lines and the abdominal segments have the usual 7 *oblique stripes;* the lower edge whitish, the upper green. The darker green longitudinal stripe of the preceeding instar gradually disappears. *The spiracles and a dot above them are sometimes conspicuously dark.* They no longer eat holes in the leaves. | 3rd Instar (4 days) |
| '3rd' but ?4th Instar (5 days) | (a) Very rough pale apple green skin, *the horn green, tipped with black,* which had turned all black before the next moult; *the spiracles were bright orange ringed with black,* and the black dots above them were much longer and more distinct. The oblique stripes on the sides were of a darker green and edged inwardly with white. (b) (which took two days longer) also had undergone marked change when the ecdysis was completed. It was not much darker in general colour; the spiracles were dark green ringed with white and the horn brown, remaining brown. The oblique stripes were dark green with paler green edging. Very rapid growth was | The variability for which this caterpillar is noted is now very evident. All four larvae are different and no doubt if there were more there would be still further variations to observe. The lightest is not unlike a fourth instar Privet Hawk. The inverted 'V' on the head has a black outer edge. *The spiracles are orangish and ringed with black.* The 'rings' between the true rings are eight in number. The true legs are dark reddish and there is a dark spot on the claspers. The oblique stripes are lighter green with some dark colouration at the front edge. The tail is black, then *pale green near the tip, tip itself being black.* When it comes to describing the other, | 4th Instar (4 days) |

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| | now noticeable in both larvae and (b) was becoming much darker than (a), but still smaller, and the skin appeared to be much rougher. Small mauve spots began to appear above the spiracles before it moulted for the last time. (b) spent two days longer in this instar than (a). | darker, specimens difficulties arise. They are very handsome. The amount of dark colour (dark grey) varies. The pattern on the back is as follows (a drawing). The marks on the claspers are better developed. The yellow inverted 'V' on the head is edged black on both sides. There is a smaller inverted 'V' within the first. The whole larva is covered with tiny light excresences which give it a pretty frosted appearance. | |
| '4th' but ?5th Instar<br><br>(a) 12 days before leaving the food-plant<br><br>(b) 11 days before leaving the food-plant | (a) was a lovely rich green with smooth skin, heavily marked on its first four segments with two rows of black dots. Thick heavy oblique lines joined together on the back; *the spiracles were large and jet black,* the horn brown, tipped black, anal claspers black. The head was striped with a black line on each side. As it grew the markings became much better defined and it fed by both day and night. The colour of (b) was now shades of brown, being much darker on the back and whitish below the spiracles. *The horn black and markedly curved;* the oblique stripes dark brown to black edged broadly with white on the inside; the spiracles black ringed with white, and the head brown with black stripes on each side. Eventually (a) reached a length of c. 4¾″ and was very big in circumference. It became much darker in colour and the black markings were spread over a much greater area; the spots on the 2nd, 3rd and 4th segments had coalesced into stripes along the sides. | Surprisingly, the four larvae are now all fairly similar. The larvae are basically a dull black. Along each side, low-down, is a pale pink wavy band running along the whole length of the body. A dark orange stripe runs dorso-laterally from each side of the head along the whole length of the caterpillar, being well-marked on the first three segments and much fainter afterwards. Along the centre of the body there is also a dark orange stripe, barely discernible in some of them. The sides of the prominence on which the tail is situated is orangish or pink, also the 'anal flap'. The oblique stripes are very faintly marked, are pink or orangish and there is a pinkish or orangish suffusion below the stripes. Both the true legs and claspers are black. The light marks on the head are now the same orange colour as the markings on the body. *The tail is curved and black. The spiracles are now all black.* In this instar they ate almost continuously. | 5th Instar<br><br>7 days for the first 2 larvae, 8 for the third and 9 for the fourth before leaving the food-plant |

It will be appreciated that in the final instar Mr. Pitman's larvae were of a different colour variety than mine, but there are still certain characteristics, such as the curved horn, which tend to suggest they were in the same instar. I have, however, put in italics the similarities throughout the descriptions in order to make them more obvious. It would indeed be remarkable if a larva so small as the newly emerged Convolvulus Hawk Moth could attain a length of 4¾″ after only three moults. If Mr. Pitman

did miss the first ecdysis, as he could very well have done owing to their small size, this would explain why the first instar appeared to last approximately twice as long as the second and third.

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Mr Pitman has been shown the script, and he says that as he could only inspect his larvae in the mornings and evenings, being out at work during the daytime, he may well have failed to note the first ecdysis.—Ed.

# In Search of *Erebia christi* Rätzer. July 1967

By C. G. M. de Worms, M.A., Ph.D., F.R.E.S.

Of the 44 species of the genus Erebia now recognised as occurring within the confines of Europe proper, *Erebia christi* Rätzer shares with *E. serotia* Descimon and De Lesse, of Pyrenean fame, the distinction of having the most restricted range among this large genus of mainly mountain butterflies. As yet *E. christi* is only known to exist in a few valleys south of the Simplon Pass within the borders of Switzerland, though there are reports that it has been taken on the Italian side of the frontier. Ever since it was first described at the end of the last century by Rätzer, collectors of many nations have visited its home and have studied its habits. They have even bred it *ab ovo* (cf. V. Stubenrauch, Biologie der *Erebia christi* 1935, *Mitt. munch. ent. Ges.* **25**: 9-26). Though there have been many early accounts of the insect's habitat, of recent years it would appear that hardly any records of its present status and of its relative abundance have been published nor anything of the many other Erebias flying on the same ground with which *E, christi* can often be confused. The valleys in which this much sought insect exists, teems with butterflies, many of which are of especial interest.

It was with the intention of studying this *rara avis* of the butterfly world that Mr R. F. Bretherton and I planned to visit the Simplon area early in July 1967, the best period for the flight of *E. christi*. Before we set out on July 7 I had gleaned a lot of very helpful information from that eminent authority on the Erebias, Mr B. C. S. Warren who had collected this species on three occasions, in 1906, 1923 and in 1927. We chose as our haven the hotel he used to patronise, the Fletschhorn at Simplon-Dorf, at 5000 ft., seven miles south of the Simplon Kulm at the summit of the famous pass. We travelled by the Simplon-Orient Express direct to Brig via Calais, Paris and Vallorbe arriving at 9 a.m. in what was virtually a heat wave. Not having arranged for a car, we caught the postbus at 10 a.m. which took us up the steep and tortuous road via Schallberg and Berisal over the summit of the pass, landing us at our destination at Simplon-Dorf by 11.30 in glorious weather. But much less settled conditions welcomed us after lunch when we walked down the main road, the 1½ miles to the Laquintal, the chief home of *E. christi*. At the start of this well-known valley we met several notable collectors. These included Dr. and Mrs. Hesselbarth from Germany who was accompanied by Dr. von Mester from Sweden. Also there was Dr. Epstein and his family, formerly of U.S.A., but now living near Lugano. We walked up the path for about a mile to the spot where *E. christi* is mainly found, a stretch bordered by some very ancient railings with a very precipitous slope downwards towards the ravine of the river and with an